



1 IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Application of :

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Serial No. 139,576

Filed December 29, 1987

CONCENTRATED STABILIZED
MICROBUBBLE-TYPE ULTRA-
SONIC IMAGING AGENT

Group Art Unit 125

Examiner: Albert T. Myers

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Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

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Name of Applicant, or
Registered Representative
Kathleen Smith
Signature
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Sir:

RESPONSE TO OFFICE ACTION

This is a response to the Office Action of September
15, setting a 3-month response date of December 15.

Cancel claims 1 to 10 without prejudice for purpose of
rewriting, and substitute the following claims:

CM
11. A concentrated, storable ultrasonic imaging
agent, comprising an aqueous parenteral medium containing a dis-
persion of microspheres predominately of diameters less than 10
microns, said microspheres consisting of gas microbubbles en-
closed by solid walls formed from heat-insolubilized biocom-
patible material, said imaging agent having a homogeneously
dispersed concentration of greater than 1×10^8 microspheres
per milliliter, said microspheres being stable in said medium
as evidenced by maintaining a concentration of greater than $1 \times$
 10^8 microspheres per milliliter for over 4 weeks at a tempera-
ture of 20 to 25C.

12. The imaging agent of claim 11 in which said
biocompatible material is a heat sensitive protein.

13. The imaging agent of claims 11 or 12 in which
at least 80% of said microspheres have diameters in the range
from 1 to 9 microns.